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THE SHIPS THAT SAIL

GOOD trade or bad trade, peace or war, there will always be a summons in the sea which cannot be resisted. It summoned the Egyptians to sail to the land of Punt to fetch incense and gold. It summoned the Phœnicians across the Bay of Biscay to the tin mines of Cornwall. It called the Vikings to coast along the Baltic shores for pillage and piracy. It called the Elizabethans to set forth from Bristol and London in order to find new trade routes, new markets for their goods, fresh sources of their imports. It calls some for trade, some for piracy, some for mere adventure, as in the case of the yachtsman of to-day. It seduces ships from the safety of snug harbours only to be tossed about by the billows of a trackless expanse. The sea ever has been, ever is, and ever will be, uncertain, fickle, unkind. In spite of the fact that for 8000 years and more shipbuilders, designers, and seamen have by experience and invention sought every possible means to overcome its terrors and to tame its fury; in spite of the fact that these men have never succeeded in getting the upper hand, yet the call of the sea will ever be obeyed. When once she has fascinated you, when once you have consented to her cry and got the salt into your veins, you become as much the slave of the sea as any Roman underling that pulled at the oar of an ancient galley. The sea calls you; you hoist sail, and go.

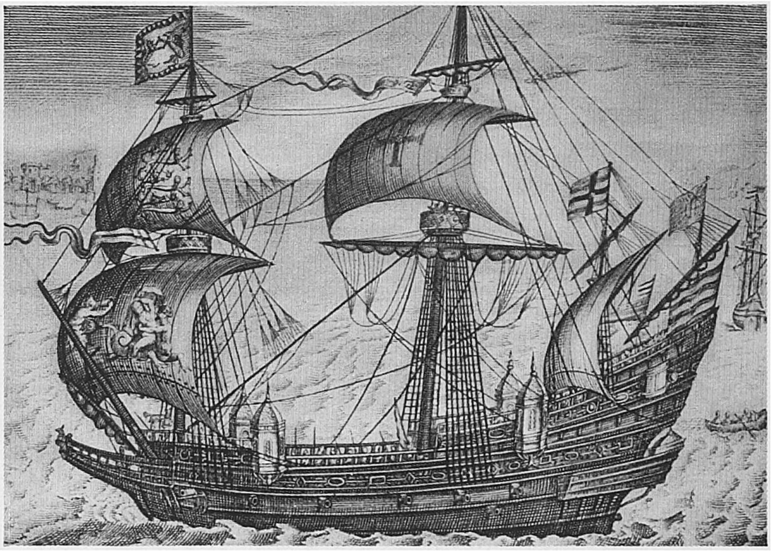
In the East, the birthplace of civilisation, we trace the beginnings of our subject. Thus we start from Egypt and Phœnicia, and, tracing the development through Greek and Roman times, advance to Northern and Western Europe and further west still to America. And in covering this period of roughly 8000 years, in spite of the enormous difference in time, in nations, in geographical and other conditions, it will be found that no feature is more amazing than the extraordinary spirit of conservatism which has spread itself universally over both ships and their sailors. So remarkable are the examples of this, even under widely opposed conditions, that it is thought worth while here to submit some of the more important ones as being worthy of special consideration.

First, take the shape of the Egyptian ship, from which the Greeks and Romans eventually obtained their shipbuilding ideas. The high poop and the rockered bow with its bold sweep aft have, it is not too much to assert, influenced the whole world's shipping ever since. True, the ancient galleys of the Greeks and Romans possess a straighter keel and a pointed bow. But this was done for a purpose. These galleys were fighting ships; and as the ram had to be placed forward in such a manner that keel, stempost, and strut-frames centred their combined force at the extreme point, the shape of the bow could not follow that of the Egyptians. The keel, too, was flat and straight, because it was the custom of the Greeks and Romans to haul their galleys ashore nearly every night. Again, we must bear in mind that the Roman or Greek war vessel was primarily a rowing boat and not a sailing ship, and that mast and sail were always lowered before going into battle. Yet, for all that, the Greek vases bearing pictures of war galleys still show the Egyptian stern. But when we come to consider the Greek and Roman merchant ships, we find the Egyptian stern and a modified Egyptian bow unmistakably present. And we must remember that the merchant ships were primarily sailing ships and only used their oars as auxiliaries.

Throughout the ages many of these general lines of the Egyptian ships have been followed. We see them appearing in the prehistoric ships of Norway, in the Viking ships of old, and in the ships of the Baltic to-day. We see this conservatism in the ships of the twelfth, thirteenth, and fourteenth centuries, in the caravels and caracks and galleons of the fifteenth and sixteenth centuries. We see it down to about the time of the *Royal George* in 1746; and even since then, when the great sweep from bow up to the extreme height of the poop-deck was modified until it practically disappeared, yet we find traces of it in the forecastle and raised quarter-deck of the modern sailing ship. And to continue the argument one step further, if you could by sending a current of electricity through one of the Egyptian naval architects, now lying as a mummy in some museum, bring him to life, so that you might take him to see the yachts on the New York Yacht Club's annual cruise, or racing off Sandy Hook, or Newport, or during Cowes Week, he would not hesitate to say that the latest and smartest yachts were based on the designs he had made for his masters under the Twelfth Dynasty.

An additional proof of the wisdom and knowledge of the ancients is to be found in the rig of their ships. The squaresail of the Egyptians was very like that used subsequently by the Greeks and Romans, and afterwards by the Vikings and many of the Norwegian and Russian ships to-day. It survived, moreover, beyond the Middle Ages, the only important difference being that three and sometimes two additional masts were provided with squaresails, with a lateen sail on the mizzen and a sprit sail and sprit topsail forward. Thus, though the headsails of a modern full-rigged ocean ship have been altered during the last hundred and fifty years, yet the arrangement of her lower courses is practically that of the single sail of the Egyptians, omitting for the present certain details which do not alter the method of harnessing the wind as a means of propulsion. They had in these early times learned the value of stretching a sail on yards. They had, besides, understood where to place backstays and a forestay to support the mast, and they had adopted the use of braces to the yards as well as of topping lifts.

The eyes painted on the ships of the Greeks and Romans still survive to-day in the hawse holes on either side of a ship's bow. And this belief of the ancients that by means of these eyes the vessel could see her way was but one article in the general creed still shared by every sailor, amateur and professional alike, that a ship, of all the creations of man, is indeed a living thing. In "The Way of the Ship" Mr. Bullen remarks that "Kipling has done more, perhaps, than any other living writer to point out how certain fabrics of man's construction become invested with individuality of an unmistakable kind, and of course so acute an observer cannot fail to notice how preeminently is this the case with ships." For though you may build two ships on the same yard from the same plans by the same builder, yet their personalities are different. The yachtsmen who elect to have a one-design class know very well that though you may raffle as to the ownership of each ship, yet there will always be one or two of the fleet that will be superior to the rest. But the ancients were before the yachtsmen in discovering that even mere contrivance of wood and metal will have a distinct character of its own.



A Galleon of the Time of Elizabeth

In ships of war the prevalence of the fighting top has been maintained from the time of the Egyptians down to the present day. To mention but a few instances, the fighting top is seen in a battleship of Rameses III. (about B. C. 1200), and it is found on ancient seals of the thirteenth century of the present era, and so on, of course, through the Middle Ages to our latest battleships. Also from the times of the Egyptians the stern was always reserved for the owner or captain and officers. This custom was that of the Greeks, the Romans, the Vikings, and the English and Americans right down to the building of the latest super-dreadnought a short while ago, when the longstanding practice of the officers being quartered aft and the men forward was for the first time broken, and to the satisfaction, be it said, of neither officers nor men. There has always been a sense of reverence on the part of the sailor for the poop-deck, and though in the merchant service many of the old ways have recently disappeared, yet the custom in the English Navy, of "saluting the deck" in honour of the Sovereign is, of course, well known. In ancient illustrations we see the place of honour always placed aft.

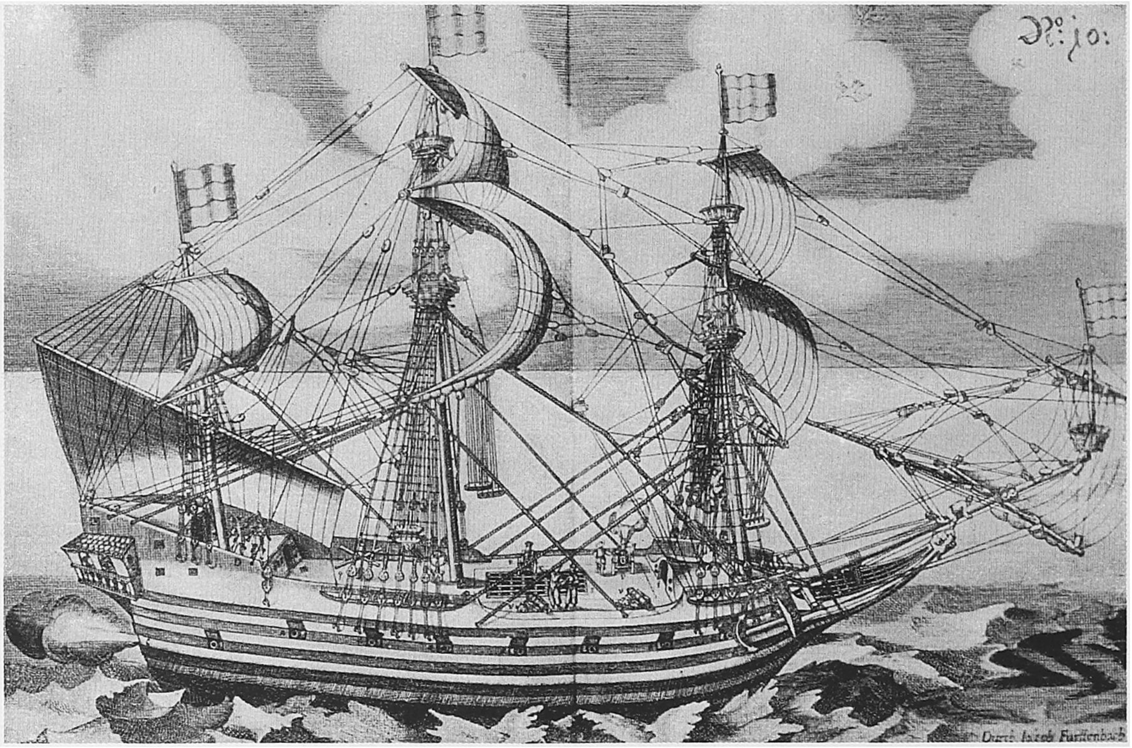
Finally we must needs refer to the extraordinary longevity of the Mediterranean galley. Adapted from the Egyptians by the Greeks and afterwards the Romans, it flourished, especially in the Adriatic, up to the sixteenth century in a modified form, and only the advent of steam finally closed its career. Even now the gondola will be recognised as bearing a family likeness, and the prow of the latter still shows the survival of the spear-heads which were used in the manœuvre of ramming.

Probably as ancient as the sailing ship itself is the squaresail rig, and next to this, none has survived so persistently as the lateen. In all probability it was adapted, a few centuries before the introduction of Christianity, from the Egyptian squaresail. Its very appearance and the corner of the world in which it is found as the prevailing rig both suggest that. It is reasonable to assume that in the course of years, when the more experienced Easterns began to discover the art of sailing against the wind and to find that the rig of the Nile boats was not suitable for this, there would be evolved a modification of the Egyptian sail to allow of tacking. This, probably, was the origin of the lateen sail of the dhow. It is of extreme antiquity, and has endured but little alteration from the time of Alexander the Great, about 350 B.C.

The ships of St. Paul's time were of a similar kind to these Eastern ships of which we are now speaking. In an essay on "The Sea in the New Testament" Mr. Bullen, referring to the ships in which St. Paul voyaged, remarks that on the East African coast, even to this day, we find precisely the same kind of vessels, the same primitive ideas of navigation, the same absence of even the most elementary notions of comfort, the same touching faith in its being always fine weather as evinced by the absence of any precautions against a storm.

Such a vessel as St. Paul's carried one huge sail bent to a yard resembling a gigantic fishing-rod, whose butt, when the sail was set, came nearly down to the deck, while the tapering end soared many feet above the masthead. As it was the work of all hands to hoist it, and the operation took a long time, when once it was hoisted it was kept so if possible, and the nimble sailors, with their almost prehensile toes, climbed by the scanty rigging and, clinging to the yard, gave the sail a bungling furl. Again, referring to the sailors' activities on the ship in which St. Paul was sailing, Mr. Bullen goes on: "They sounded and got twenty fathoms, and in a little while found the water had shoaled to fifteen. Then they performed a piece of seamanship which may be continually seen in execution on the East African coast today—they let their anchors down to their full scope of cable and prayed for daylight. The Arabs do it in fair weather or foul—lower the sail, slack down the anchor, and go to sleep. She will bring up before she hits anything."

In "Sailing Ships and Their Story" E. Keble Chatterton, to whose work the writer is under many obligations, adds that among the many interesting items of marine information which we are enabled to gather from the voyages of St. Paul, we find that the lead-line was in use, for we are told that “they sounded and found it twenty fathoms: and when they had gone a little further they sounded again and found it fifteen fathoms.” Also they “were in all in the ship two hundred threescore and sixteen souls,” so she was a vessel of considerable size. Then in the morning, the storm not having abated, and they having espied a snug little creek with a good shore for beaching, “when they had slipped their anchors they left them in the sea, at the same time loosing the rudder bands, hoisted up the artemon, and made towards the beach.” They had, no doubt long previously, learned the action which has saved many hundreds of ships, at all times of the world's history, from foundering, by detaching the cable from the ship and not waiting to heave up the anchor. Moreover, they had found a nice beach under their lee, so the artemon or foresail was hoisted up the small foremast, and she would be able to make the beach without too much way on, and without the enormous amount of work that would have been necessary had the mainsail been set—a proceeding, considering the weather about, that they were not anxious to attempt. “Artemon” is the word used in the Greek of the New Testament: the translation of this as “mainsail” in the authorised version is of course quite wrong. The later ships were fitted with a mainsail and mast, but also a small foremast tilted at an angle of perhaps twenty-three degrees pro-

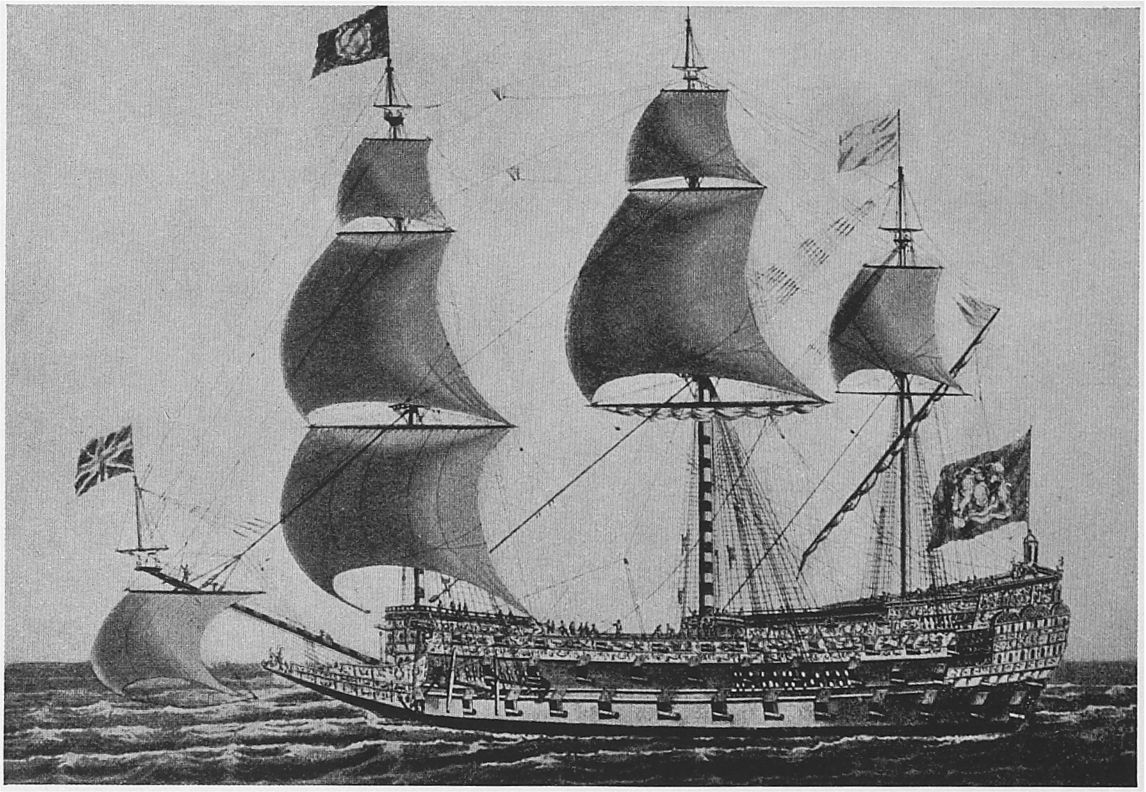


A Full-rigged Ship of the Early XVII Century jected out from the bows, on which another small squaresail set. This was the artemon or foresail, and it would be in just such a manœuvre as this, or for giving the ship a sheer when getting up the cable or when coming into port even in fine weather, that this headsail would be found of the greatest use. We must not forget that this kind of foremast and foresail continued right till the beginning of the nineteenth century on all full-rigged ships, in the form of bowsprit and spritsail, until the triangular headsails with which we are so familiar nowadays came in. Finally, before we leave the voyages of St. Paul, we must not omit to notice the reference to the statement that after the anchors had been slipped they loosed the rudder bands. Instead of leaving the rudders to get foul of the stern cables when they had put out the four anchors, or to run the risk of being dashed to pieces by the waves, the ropes extending from the stern to the extremities of the steering oars would be hauled up so that the blades were quite clear of the water. It was a similar operation to a Thames barge hauling up her leeboards. Therefore, having cast off their anchors and being under way again, the rudder-ropes would necessarily be lowered.

One of the finest specimens of a Greek sailing galley with one bank of oars is shown on a vase in the British Museum, the date being about 500 B.C. As many as eight brails are found on the sail. The number of these gradually became so great that we find in the Athenian inventories of the fourth century B.C. that the rigging of a trireme and quadrireme included eighteen brails. No doubt, as time went on, it was found more convenient to be able to brail the sail up at closer intervals. In the present illustration the sail is furled right up to the yard and the rowers are doing all the work. A capital instance here is afforded us of the ever watchful eye which has been mentioned as being a notable feature of the ancient ship. It is worth while remarking, as showing the extent of this practise, that a representation of an eye is still to be found as a distinguishing attribute on the Portuguese fishing boats to-day.

So much for the ship of the ancients. It is impossible to go into further details within the limits of a magazine article. Coming now to the England of Elizabeth, the galleon of her time is well described by John Masefield, the poet. The galleon was roughly the prototype of the ship of the line, as the galleasse was the prototype of the frigate, and the pinnace of the sloop or corvette. The galleon was low in the waist with a square forecastle and a high quarter-deck just abaft the mainmast, rising to a poop above the quarter-deck. Reckoning upwards, the two decks, according to Manwayring, were called lower orlop or first orlop, and the next the second orlop. But if a ship had three decks they never called the uppermost—the third—by the name of orlop, but simply "upper deck." The wooden bulkheads that separated the stern from the waist were pierced with holes for small quick-firing guns.

The length of the galleon was three times that of her beam, whereas the ordinary merchantman was only twice her own beam, thus preserving the old distinction that we saw in classical time existing between the long ship and the round ship. Yet the newer class of Elizabethan merchantman was getting longer, influenced by the experience gained on the long voyages across the Atlantic. It had been in Italy, the great home of maritime matters in earlier days, that the galleon had first been built. The galleon was in fact the child of necessity. The Mediterranean possessed the galley-type from very early times; she also had the "round" merchant type. But as time went on a demand arose for a compromise between the two. Able to hold as much cargo, and more, than the old round ships, yet not utterly helpless like them in calms and narrow waters, the galleons were yet to be of such a kind as to be capable of acting with the galleys in war time. So they were made not as long but with more beam than the galleys, with a built-up structure fore and aft and—let us note this carefully—though they were sailing ships, they had at first auxiliary oar-propulsion. The smaller English galleons also retained their oars for a long time.



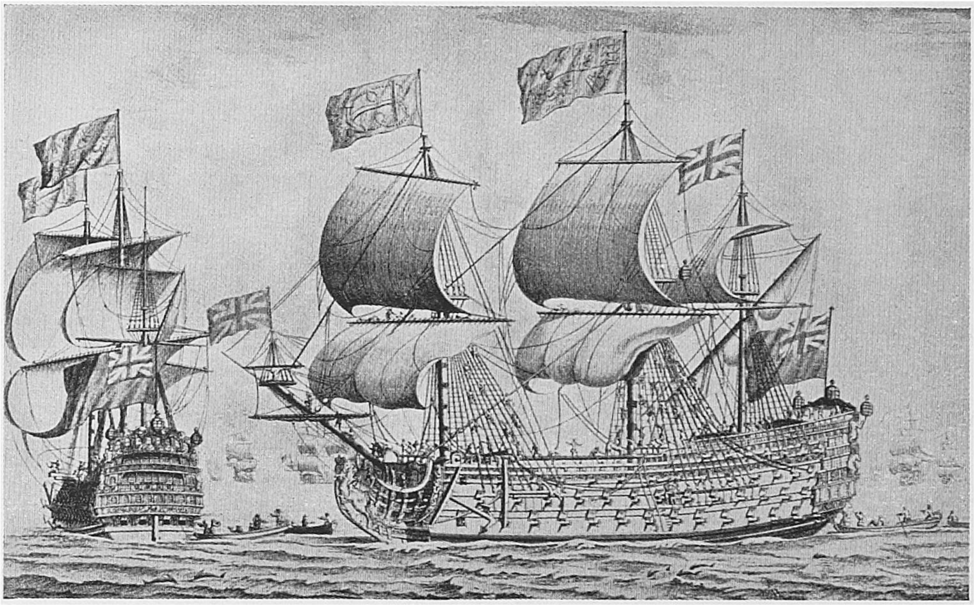
A "Sovereign of the Seas." Built in 1637

The illustration shows an Elizabethan galleon with decorated sails, a practice that died out about the close of Elizabeth's reign. This decoration was effected by stitching on to the canvas cut-out pieces of cloth with twine. Most of the sails were woven in Portsmouth on hand looms, and the stuff was of good quality. But during the reign of James II., when the Huguenots took refuge in England, among the many new trades which the settlers brought over was that of the manufacture of sailcloth. A French refugee, Bonhomme, who had settled down at Ipswich, taught the secret of its manufacture. Previously, England had imported her sail-cloth from France.

Charles I. took the liveliest interest in the Navy, and under him naval architecture continued its progression. The Sovereign of the Seas, one of the most famous of warships, is reproduced from an engraving in the British Museum, after the picture by Van der Velde. How much nearer his craft approaches to the old "wooden walls" of the eighteenth century than all that has gone before! Built in 1637, this vessel was for the next generation the admiration and envy of foreign nations. Like the Prince Royal at a later date, she was cut down in 1652 to a two-decker, having been found somewhat crank. But as originally constructed, the Sovereign of the Seas was a three-decker—the first of her kind—and her measurements, probably taken on the gun-deck, were: 169 feet 9 inches long, by 48 feet 4 inches beam, the depth of her hold being 19 feet 4 inches. She had a tonnage of 1683 burthen, and her anchor weighed 60 cwt. Designed by one member of the Pett family, Phineas, she was built under the supervision of Peter Pett. In 1684 she was practically rebuilt and then renamed the Royal Sovereign, but twelve years later had the misfortune to be burnt accidentally at Chatham, yet not before she had done excellent service under Blake and others during the seventeen century wars. Notice in the illustration that instead of the rare use of the top-gallant at the main, she carries them on all three masts: further still, observe the fact that by now royals have come into use for the first time. The fore and main have them stowed with yards lowered. Originally the Sovereign of the Seas had four masts. She carried over 100 guns; had a figure-head; and the beak-head, though somewhat similar to that of the Prince Royal, is placed lower, while the length of the ship is proportionately greater, and the original tubby appearance of the Prince Royal is improved upon. There is a medal of the time of Charles I., commemorating the Declaration of Parliament of 1642. On one side is shown a conventionalised design of this or a similar ship, showing both top-gallants and royals, the latter stowed.

Comparing a ship of the seventeenth century with a modern sailing craft of the same tonnage, the most striking defects that would appear in the former were the clumsiness in proportions. The lowness of the bow and the height of the stern seem to us nowadays ridiculous; so they were. But it was just one of the stages reached in the transition from those lofty forecastles and stern-castles that we saw originate in early times. But masts and spars were now no longer the stumpy items they had been. There was an improvement, too, in the existing rule of tonnage-measurement. Up to 1628 it had been far from reliable, being reckoned by the capacity for storing so many tuns of wine. From the time of Henry V. and long after, ton as applied to shipping denoted the capacity to hold a barrel measuring 42 cubic feet in the hold below deck. Therefore a vessel of 900 tons was capable of holding 900 such barrels. As the barrels were circular and could not be packed close together, the tonnage was really greater than what was given. But from 1628 it was to be estimated from the length of the keel, leaving out the false post (a piece bolted to the after edge of the main sternpost), the greatest breadth within the plank, the depth from that breadth to the upper edge of the keel, and then to multiply these and divide the result by one hundred.

The Royal George, of 100 guns, was one of the most famous ships of the eighteenth century. Her size—2047 tons—alone makes her remarkable, apart altogether from her good looks. Her length on the keel was 143 feet 5½ inches, beam 51 feet 9½ inches, depth 21 feet 6 inches. Built at Woolwich she ended her days most tragically. While she was being careened as she lay at anchor in Spithead for some repairs to her hull below the waterline, she sank on August 29, 1782. To-day she is still famous as the ship in which Rear-Admiral Kempenfelt, together with nine hundred men, women, and children, went down to their graves. The illustration is taken from an engraving, by T. Baston, in "Twenty-two Prints of several of the Capital ships of his Majesties Royal Navy," in the Print Room of the British Museum.



H. M. S. "Royal George" 100 Guns, 2,047 Tons. Foundered in 1782

Nelson's historic flagship, the Victory, of 100 guns, was built in 1765. Her immediate predecessor of the same name was launched in 1735, being the finest first-rate of her time, until she was lost in a terrible storm off the Alderney Race, every one of the 1000 souls on board perishing with her. The Victory still swings to the tide in Portsmouth Harbour. Her length is (measured on the gun-deck) 186 feet, beam 52 feet, depth of hold 21 feet 6 inches, whilst her tonnage is 2162, or slightly larger than the Royal George previously mentioned. Very interesting to any one who has traced its development, is the stage at which the bow has arrived. Gone is the towering forecastle, though the name still survives as designating the fore-part of even small cabined craft. Even the diminished rake of the seventeenth century from bow to stern has disappeared too. Three stern lanterns would have been part of the ship's inventory when she set out for the Mediterranean on her last voyage with Nelson. Quite recently the Admiralty have added replicas of these, which look not a little incongruous as they tower above submarines and torpedo-boats churning up the water below. Recently also it was discovered that the wrong signals had been flown on Trafalgar Day each year, for the code of a far too modern date was relied upon. This mistake has been rectified, and the correct flags are now flown on October 21.

How almost synonymous are "ship" and "conservatism"—as was pointed out before—is shown in the white band that appears on the hulls of many vessels. Up to the beginning of the nineteenth century ships of the Royal Navy were painted with blue upper works, bright yellow sides, and broad black strakes at the waterline. The interior was generally painted red—with the purpose of not showing too prominently the bloodshed in battle. But Nelson had the hulls of his ships painted black with a yellow strake along each tier of ports, but with black port-lids, and this chequer painting distinguished all men-of-war, both at Trafalgar and after. White was soon introduced as a substitute for the yellow. This white band has survived to this day on many of our biggest sailing ships, and is well seen in Mr. Charles Dixon's sketch of the four-masted barque followed by the Mauretania.

In the merchant service, the old East Indiamen "with their stately tiers of sails and splendid crews of trained seamen," although they were much finer in their lines and less unhandy than the vessels in the Royal Navy, their rig was in most respects akin to the latter. They carried three courses—foresail, mainsail and cro' jack, three topsails (in each of which there were three or four reefs), and three t'gallant sails and royals, or twelve sails on the three masts. The fore-and-aft sails were: on the bowsprit and jib-boom, a fore topmast staysail, and inner jib and outer jib and flying jib. Below the bowsprit was set on the spritsail yard, the "spritsail," but which in the nineteenth century, even though triangular headsails were more in evidence than before, still continued, though known as a "water sail," or "bull-driver." Leslie, in his "Old Sea Wings, Ways and Words in the Days of Oak and Hemp," says that spritsails were not only used when going free but when on a wind. The reef points were placed diagonally so that when reefed that part of the sail nearest to the sea was narrower than the upper part. Two circular holes were cut, one in each corner, so that when the ship plunged her bows into a sea the water could run out and not split the canvas. Mr. Bullen says that this sail was not of much use, nor could he understand why it was carried at all, as it always had to be furled as soon as the ship began to pitch a little. However, this last and final relic of mediævalism has at last departed for good, although it dated back for its origin to the artemon of classical times. Even when the sprit topmast had disappeared, the sprit topsail was retained for some time by placing it below the bowsprit instead of above, but further forward of the spritsail proper.

Between the fore and main masts of

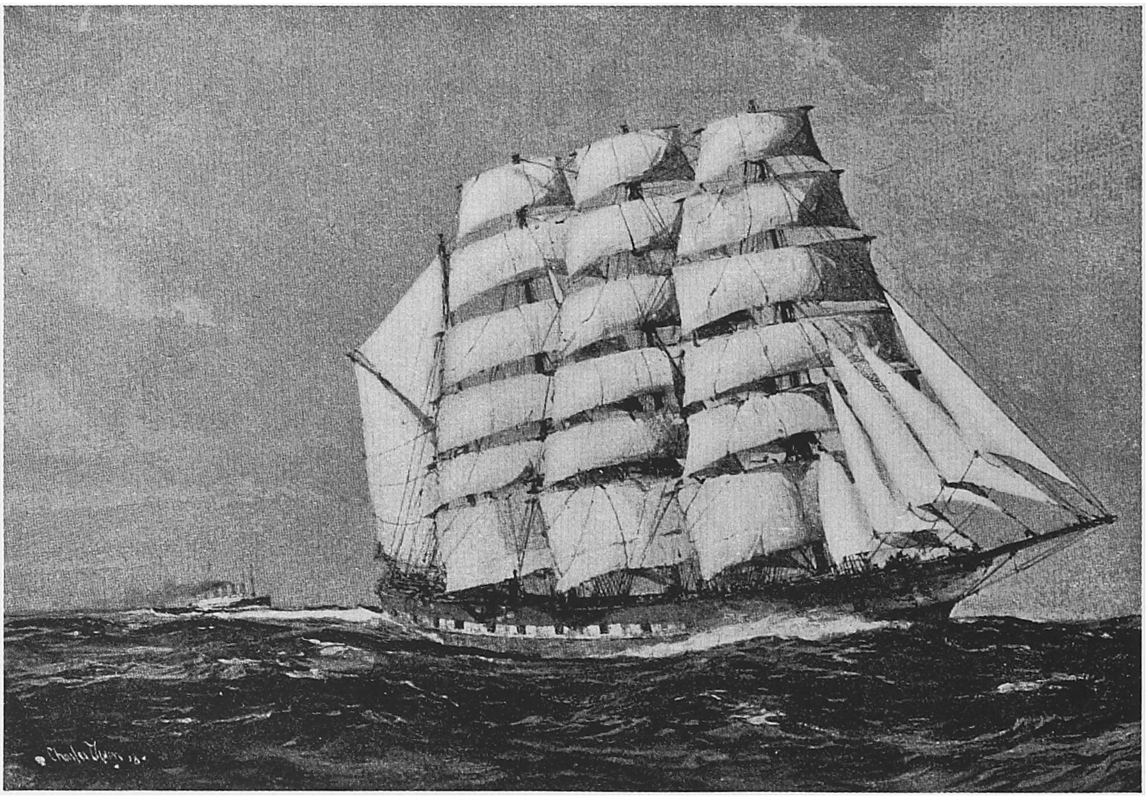
the East Indiamen were the main topmast staysail, main topgallant staysail and main royal staysail. Between the main and mizzen were the mizzen topmast staysail, and mizzen t'gallant staysail, but a royal was seldom set on this mast. Abaft came the spanker or driver, often with the addition on the after-leach of a ring-tail. Stun'sles, too, were used. But in those days although these East Indiamen carried more hands than a sailing ship of like size does to-day, yet every night at sunset all light sails were taken off her and the ship was snugged down for the night. Still the old bluff-bowed East Indiaman had had its day when the United States, encouraged by the opportunity which freedom from war now afforded, introduced on the sea ships with clipper bow that literally cleft the waves instead of hitting them and retarding the passage of the hull through the water. With a freedom of mind which has ever characterised the American, both as a nation and an individual, the marine architects on the other side of the Atlantic threw convention still further to

The Iron Barque, Macquarie. Built in 1875 the winds by modifying the design of the stern in such a way that instead of squatting and holding the dead water the ship slid through it cleanly with a minimum of resistance. Possessing unlimited supplies of timber, they were in a position to build ships at a far lower rate than we in this country. In fact, so much was this the case that in England between the years 1841 and 1847 no fewer than forty shipbuilders went bankrupt in Sunderland alone. The one object of the American designer was to build a ship that should sail every other craft off the seas and so obtain the maximum of trade-carrying. Besides the improvement in bow and stern they lengthened the ship till she became five and six times longer than in breadth. This gave an opportunity of adding a fourth mast to the ship and to carry more sails. The sails themselves were improved in cut, being no longer mere bags to hold the wind, but a "close textured, dazzlingly-white canvas." In exact contradistinction to the East Indiamen, these Yankee ships did not reef down in anticipation of the gale that was to follow hours after, but took in sail reluctantly. The part played by American clippers during the period that saw the close of the great wars and the beginning of the American Civil War is one of vast importance to the development of the sailing ship of any size. Even when steamers began to cross the Atlantic in 1840, these wonderful clippers were able to cross in about a fortnight. In every way superior to the old cotton-ships running between New York and Havre in the early 'thirties, the clippers of the 'forties and 'fifties were seaworthy as well as fast. One of the most famous was the Flying Cloud, built in 1851, which performed the sensational run of 427 knots in twenty-four hours when on a passage from New York to San Francisco. Another Yankee clipper, the Sovereign of the Sea, did even better still.

Attention is called to the beautiful illustration of the celebrated Macquarie. She is an iron barque, and was built in 1875. In her day she was a famous beauty, but now she has changed her name and nationality. Known as the Fortuna she is registered at Sandefjord and flies the Norwegian flag. The reader will remark the old-fashioned white band introduced soon after the Battle of Trafalgar.

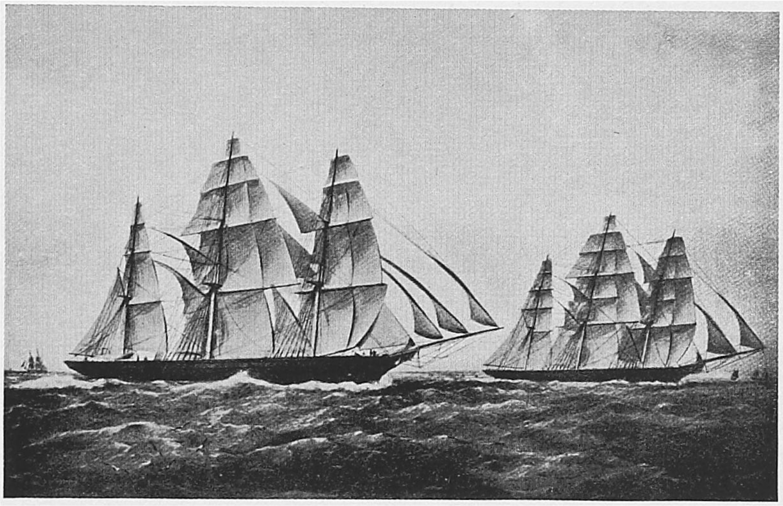
The effect of the opening of the Suez Canal in the year 1870 was to place most of the trade to the East into steamers, which by now had become the deadliest enemy of the sailing ship. It would have been impossible to have carried on the trade in frozen food to-day in these fine old ships, and sentiment had necessarily to give way to the exacting dictates of commerce; but for a long time before 1870, and for some time after opening the canal, the traffic to India, Australia, and New Zealand was carried on in sailing ships, and the same keen rivalry to make the best passage continued. The Atlantic emigrant traffic also continued to be carried in sailing ships; but the ceaseless progress of the big steamship lines, and the competition which lowered the fares for steerage passengers, drove still another nail in the sailing ship's coffin. And yet, in regard to speed, these ships would sail to the east or the west with a regularity equal to most modern tramp steamers.

The largest sailing ships are now built of steel and there is much machinery and metal appliance about them. Between these ultra-modern craft and those quaint pre-historic specimens that are depicted on Egyptian jars, what little connection is there, save for the one solitary fact that both depend on water for their buoyancy and on wind for their propulsion! Wood has disappeared as the material for ribs and skin, and chain is now used for topsail sheets and for the slings, which latter are employed to suspend the lower yards, the upper yards being sent down when necessary. Spars and masts are made of steel, wire has taken the place of much of the rope that was used. Shrouds and stays are of iron, rigging screws are used instead of lanyards and of dead-eyes. All the braces except the lower ones are of wire, even to the royal and skysail braces, so that the greater part of the rigging of a ship is now done in harbour ashore by skilled mechanics. The result is that "marlinspike seamanship" is fast disappearing and getting under way to join the spritsail, oak and hemp of other days. Only among the somewhat diverse class of fishermen, yachtsmen, and the seafaring men from Scandinavia and up the Baltic, does it survive with any outward signs of life at all.



A Modern Four-Masted Barque, with the "Mauretania" coming up astern

We have seen the beginning of the bowsprit with its enormous rake to carry the artemon; we have watched it continue through the Tudors and Stuarts as practically an additional mast steeved at a considerable angle. Gradually the angle has got smaller and smaller until now in the twentieth century in the latest ships, it is much more nearly horizontal. We saw this spar become divided into two, and later into three parts—flying jib-boom, jib-boom, and bowsprit. To-day, though it is made of iron or steel, it has gone back to be of one piece. We witnessed the introduction of bonnets; they also have nearly disappeared. The studding sails which Raleigh spoke of are scarcely ever seen, although in the sixties they were prominent features of the clippers when getting every ounce of power out of the ship. No doubt their awkwardness, and the necessity of having a first-class helmsman to prevent the ship swerving suddenly off her course, had most to do with their departure. Convenience, too, in handling so much canvas up the mast led to the introduction of the topsails and topgallants, being cut in half and used double, though on the mizzen a single topsail is frequent. The gradual introduction of skysails during the last hundred years has continued till they are found often on fore, main, and mizzen, while the staysails, which were such characteristic features of the eighteenth century Dutchmen, are now used freely on most of the stays. Nor has the change been confined to the spars, sails, and rigging. Some of the Gallic vessels of Cæsar's time—so he records—were fitted with iron cables. Then rope came in, and hemp remained for centuries until, roughly, 1800. The introduction of the chain, then, has been merely a revival. Lead sheathing was used by the ancients, forgotten for many centuries until the Spanish restored its use in the fifteenth century, and the English in the sixteenth. It was forgetten again until the seventeenth century, when it was introduced afresh. That was another revival. The Romans used bronze nails, and we have revived those again. The Greeks invented the schooner bow. It was forgotten for centuries again and reintroduced. Still another revival. In yachts, the last few years have seen the introduction of a reefing gear for furling both mainsail and headsails. The Chinese have had the former for centuries. Quite lately the fashion has come in to build yachts with double-ended "canoe" sterns. That, too, is but a revival of the old Viking shape. In the years following the coming of William the Conqueror the tendency was for the ship to have terrific sheer. Gradually, this has disappeared, until to-day ships have practically none.



The "Ariel" and "Taeping," Two of the Finest Tea-Clippers, Racing Home, off the Lizard on September 6, 1866.